IN THE CLAIMS

1. (Previously Presented) An acoustic diaphragm having a dynamic response extending throughout the audible range, comprising a rigid plate-shaped member supported upon a stiffened edge of a side thereof which pivots on torsional springs, said rigid plate-shaped member having torsional and translational stiffeners, a resonant frequency of the rigid plate-shaped member being substantially dependent on at least a set of physical characteristics of the stiffened edge.

2. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said torsional and translational stiffeners comprise cross members traversing said rigid plate-shaped member.

3. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein the stiffened edge of the side that supports the diaphragm comprises a "T"-shaped cross section whose length and cross-section are adapted to tune said acoustic diaphragm so that its lowest resonant frequency is higher than the audible range.

4. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said rigid plate- shaped member is fabricated of polycrystalline silicon.

5. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said rigid plate-shaped member comprises a substantially flat shape.

6. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said rigid plate-shaped member comprises a shape substantially corresponding to a box.

7. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said rigid plate-shaped member is approximately 2 microns thick.

8. (Previously Presented) The acoustic diaphragm in accordance with claim 1, wherein said torsional and translational stiffeners comprise cross rectangular members extending from a flat surface of the rigid plate-like structure which are approximately 4 microns thick and 40 microns tall.

9. (Original) The acoustic diaphragm in accordance with claim 1, having a first resonance frequency of approximately 24 kHz.

10. (Original) The acoustic diaphragm in accordance with claim 1, having a second resonance frequency of approximately 84 kHz.

11. (Previously Presented) An acoustic diaphragm having a robust dynamic response extending throughout an audible range, comprising a rigid plate-shaped member supported upon a "T"-shaped cross section disposed on a side thereof which is pivotally suspended by torsional springs, said rigid plate-shaped member having torsional and translational crossbar stiffeners.

12. (Previously Presented) The acoustic diaphragm in accordance with claim 11, wherein said rigid plate-shaped member is fabricated of polycrystalline silicon.

13. (Previously Presented) The acoustic diaphragm in accordance with claim 11, wherein said rigid plate-shaped member comprises a substantially flat shape.

14. (Previously Presented) The acoustic diaphragm in accordance with claim 11, wherein said rigid plate-shaped member comprises a shape substantially corresponding to a box.

15. (Previously Presented) The acoustic diaphragm in accordance with claim 11, wherein said plate-shaped member is approximately 2 microns thick.

16. (Previously Presented) The acoustic diaphragm in accordance with claim 11, wherein said torsional and translational stiffeners comprise rectangular structures approximately 4 microns thick and 40 microns tall extending from a flat surface of said plate-shaped member.

17. (Original) The acoustic diaphragm in accordance with claim 11, having a first frequency mode of approximately 24 kHz.

18. (Original) The acoustic diaphragm in accordance with claim 11, having a second frequency mode of approximately 84 kHz.

19. (Previously Presented) An acoustic diaphragm having a dynamic response extending throughout the audible range, comprising a plate-shaped member cantilevered about one side thereof from a stiff edge structure, said stiff edge structure being pivotally supported by torsional springs, said plate-shaped member having torsional and translational stiffeners to provide a robust dynamic response to acoustic waves by displacement about said torsional springs extending throughout the audible range, having a dynamic response dominated by a single mode of vibration outside of the audible range which is substantially dependent on said stiff edge structure.

20. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein said torsional and translational stiffeners comprise continuous cross members.

21. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein the stiff edge comprises a "T"-shaped cross section whose length and cross-section are adapted to tune said acoustic diaphragm so that its lowest resonant frequency is higher than the audible range.

22. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein said plate-shaped member is fabricated of polycrystalline silicon.

23. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein said plate-shaped member comprises a substantially flat shape.

24. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein said plate-shaped member comprises a shape substantially corresponding to a box.

25. (Previously Presented) The acoustic diaphragm in accordance with claim 19, wherein said plate-shaped member is approximately 2 microns thick.

26. (Previously Presented) The acoustic diaphragm in accordance with claim 25, wherein said torsional and translational stiffeners comprise rectangular structures approximately 4 microns thick and 40 microns tall extending from a flat surface of said plate-shaped member.

27. (Previously Presented) The acoustic diaphragm in accordance with claim 26, wherein said dominating single mode of vibration outside of the audible range comprises a first frequency mode of approximately 24 kHz.

28. (Original) The acoustic diaphragm in accordance with claim 27, having a second frequency mode of approximately 84 kHz.